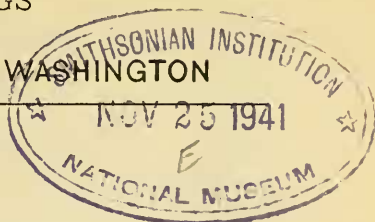


PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTONTHREE NEW RACES IN THE GENUS *OTUS* FROM  
CENTRAL MEXICO.BY ROBERT T. MOORE,  
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Since the review of the Genus *Otus* of Mexico and Central America by James L. Peters and the author (Auk, Vol. 56, January, 1939, pp. 38-56), seven specimens from Mexico of *Otus asio* related to *Otus asio cineraceus* and two specimens related to *Otus vinaceus* (Brewster) have been added to the Moore Collection. Furthermore, four new specimens of *Otus sinaloensis* have been acquired by the Donald R. Dickey Collection. These thirteen individuals give quite a different picture of the relationship of *Otus asio cineraceus* and the race which most authors, including Peters and myself, have come to call *Otus asio vinaceus*. In the above-mentioned review (p. 40) we noted three females from the Rio Sestin and Sanctuario, Durango, referred by Miller (Bull. Am. Mus. Nat. Hist., 20: Art. X, p. 164) to *Otus asio aikeni*, which we considered more nearly related to *Otus asio cineraceus*, resembling birds from Reserve, New Mexico, in their broader streakings on both upper and under parts. These birds average somewhat larger than true *cineraceus*, but not so large as a series of *Otus asio aikeni* from Colorado, which, because of lack of adequate material, was not perceived by Ridgway (Bull. 50, U. S. Nat'l Mus., Part VI, p. 695), and are darker throughout than *aikeni*. That these birds might be intergrades with some undiscovered race farther south was suspected by the author at the time; in fact a single new female from Ojito, Durango, pointing to this conclusion, came into my possession just after the review had gone to press.

Our fresh material reveals the following picture: (1) An undescribed larger and darker (more black and white) race of *Otus asio* belonging to the

*cineraceus-gilmani-xantusi* group, ranging east-west across the Central Plateau<sup>1</sup> from Aguascalientes to Hidalgo; (2) A second undescribed browner race of the *cineraceus* group, much smaller than *suttoni*, inhabiting the southwest end of the Central Plateau north of the Rio Balsas and carrying the range of the *cineraceus* group southwestward in a semicircle from southwestern Arizona east through New Mexico, thence south through Chihuahua to Durango, thence to Jalisco, part of it north and part east of the great Sierra Madre range inhabited by the *vinaceus-sinaloensis* group. This new prong to the range of the *cineraceus* group continues the curving semicircle west around and exactly south of the *vinaceus* group; (3) A most surprising undescribed huge race of the *vinaceus* group, inhabiting Michoacan, carrying this group seven hundred miles farther southeast straight across the semicircular range of the *cineraceus* group. The result of this curious crossing of ranges is that we find a breeding pair of race (2) mentioned above, at Atoyac, Jalisco, with *vinaceus* due north of it, while southeast of this new race and not one hundred miles away at Apatzingan, Michoacan, is another race of *vinaceus*. These last two races, so close geographically, are *very* much farther apart in characters than *cineraceus* of Arizona and *vinaceus* of Chihuahua-Sinaloa. Furthermore, vagrant dispersion does not enter into the picture, for the two groups were taken within twenty days of each other, one a nesting pair and at least one individual of the other in the breeding period. The conspecific concept of *vinaceus* and *cineraceus* as races of *Otus asio* seems invalidated. As a further complication the Michoacan representative of *vinaceus*, although markedly differentiated from every other known *Otus*, has the large size and feet, and on the toes the thick bristles (without fine hairs extending from the rachis) of *Otus cooperi* and in some ways is intermediate between *cooperi* and *vinaceus*.

Considering all relationships possible for this Michoacan bird, two will be ruled out by all competent students of *Otus*. It is not a *trichopsis* nor a *guatemalae*. Four concepts are possible. (1) This undescribed form may be a new species. Although possible, this seems an undesirable solution, except as a last resort, obstructing progress in the modern interpretation of interspecific relationship. (2) It may be conspecific with *cooperi*. (3) It may be conspecific with the *vinaceus-sinaloensis* group and *cooperi*. (4) It may be the connecting link, proving the conspecific relationship of the entire *Otus asio* group with both the *vinaceus-sinaloensis* group and *cooperi*. This is the most *desirable* solution of all, but will analysis support it?

Let us first reconsider the possibility that Ridgway (Bull. 50, U. S. Nat'l Mus., Part VI, p. 708) may have been right in considering *vinaceus* closer to *Otus cooperi*, than to *Otus asio cineraceus*, concept (3) above. When Ridgway weighed this problem, there was extant one specimen of the *vinaceus* group, the type of *Megascops vinaceus* Brewster. When the review of "Genus *Otus*" (opus cit.) was published in 1939 there were six. To-day there are twelve known individuals, the above type in the Museum of Comparative Zoology, four specimens of *sinaloensis* in the Dickey Col-

<sup>1</sup> To insure definiteness, hereafter I shall term the great plateau of Mexico running north-south from Chihuahua and Coahuila to Jalisco, Michoacan and the state of Mexico, the "Central Plateau."

lection, seven individuals in the Moore Collection, consisting of two *vinaceus*, three *sinaloensis* and two of the undescribed race from Michoacan. All of these have certain characters in common, differentiating them from the *Otus asio* group: (1) toes bristled, or in *sinaloensis* having both intermediate and true bristles, (2) average tail-length proportionately longer than in races of *Otus asio* (obviously longer than half the length of the wing), whereas according to my measurements and those of Ridgway (Bull. U. S. Nat'l Mus. No. 50, Pt. VI, pp. 687-704) the average tail length in all races of *asio*, except possibly *mccallii*, is slightly shorter than one-half the wing, at least in one sex or the other. (These differences are not great and would be unimportant, except as part of general cumulative evidence.), (3) the color pattern although close to that of *Otus asio* group, differs in all three forms and every specimen in having the streaking on under parts hairlike, the "herringbone" marks so obscured that at first glance no bars appear to exist and actually do not in the Michoacan birds, (4) the dots of the vermiculation of posterior under parts are more frequent and thick, extending posteriorly and continuously over the thighs, so that no plain white areas occur, as in the *asio* group, (5) the so-called "vinaceous" (Benzo Brown) coloration of upper parts, progresses as we proceed southward, into a more Avellaneous or Vinaceous-Fawn tone, whereas in the *asio* group a brownish gray coloration proceeds in just the opposite direction toward a sharply contrasted pure black-white coloration in the undescribed *Otus asio* race of the southern Hidalgo-Aguascalientes belt of the Central Plateau, (6) the toes, in proportion to wing have the somewhat larger size of *Otus cooperi*, (7) the quadrate dark spots on outer webs of ninth, eighth and seventh primaries are regularly vermiculated, except in the Michoacan race.

*Otus cooperi* possesses five of the above seven characters, but in the second (2) its average (and individual) tail length is always obviously and considerably shorter than one-half the wing length, and in the third (3), although possessing an equally continuous vermiculation and equally narrow streaking, reveals only vestigial remnants or none of the dark blotches on the sides of breast and nuchal collar. But the significant thing is that the undescribed Michoacan race of the *vinaceus* group, has assimilated two characters of *cooperi*, not possessed by the *vinaceus* group. (1) extremely large size, if not larger size than *cooperi*, including large feet, toes and claws, (2) absence of vermiculation on the darker quadrate spots on the outer webs of the ninth, eighth and seventh primaries. Finally, the specimen of *cooperi* in the British Museum from Cacoprieto, Oaxaca, fills in an important gap in the range between *cooperi* and the *vinaceus* group.

Summing it up, (1) the presence of a markedly contrasting breeding race of *Otus asio* in the middle of the range of the *vinaceus* group seems to destroy the conspecific concept of *Otus asio* with the *vinaceus* group; (2) the undescribed race from Michoacan fills in the gap in characters between the *vinaceus* group and *cooperi* (the author does not deem the proportionately shorter tail amounting to a difference of a few millimeters a significant specific difference); the gaps left in the anticipated continuous range of the species, which may eventually be known by the specific name of *cooperi*, are large but not unexpected in this group of owls so difficult to collect.

Representatives of *cooperi* and *vinaceus* have now been taken within four hundred and fifty miles of each other, assuming the authors of the *Biologia Centrali-Americana* (Aves III, 19) were right in assigning the Cacoprieto specimen from the Isthmus of Tehuantepec to *cooperi*, which I believe to be correct, although I have not seen this specimen in the British Museum recently. However, because these gaps are still large, I hesitate to assert the conspecific relation of the *vinaceus* group with *cooperi*, although I believe this decision must eventually be made. This paper is no place for a comprehensive analysis. For the above reasons and others I deem it best at present to accept concept (3)—a conspecific relationship with the *vinaceus* group only, separating it from the *asio* group. This concept seems more desirable to me than the assumption of conspecific relation with *cooperi*, until more material is available. It gives me great pleasure to acknowledge the courtesy displayed in the loan of material or otherwise, by Dr. Herbert Friedmann and the United States National Museum, Dr. George Miksch Sutton and Cornell University, Mrs. Donald R. Dickey and Mr. Adrian van Rossem, Mr. George Willett, the Los Angeles Museum and Dr. Louis B. Bishop.

#### *Otus asio suttoni*.<sup>2</sup>

##### PLATEAU SCREECH OWL.

*Type*.—Female adult in winter plumage, number 27962, collection of Robert T. Moore; Portezuelo, Hidalgo, Mexico, about 5800 feet, December 19, 1940; collected by Chester C. Lamb.

*Subspecific characters*.—Resembling *Otus asio semplei* Sutton and Burleigh, but differs in having general coloration more purely black and white throughout; the upper parts darker (more black and dark gray, rather than black and dark brown); the streaking on the pileum much more separated (less solid); the auriculars grayer (less brownish); the primary coverts and portions of greater wing coverts immediately above them more blackish (less brownish) margined with whitish, not with buff; the white areas of chin and upper throat pure white, as contrasted with the buffy areas of *semplei*; the ground color of the legs pure white instead of Cinnamon-Buff<sup>3</sup>; and in most specimens, the lighter spots on the under surface of the secondaries and proximal primaries usually pinker, rather than more tan color; wing larger; toes well feathered, not partially bristled as in both *semplei* and *mccallii*. Differs from *mccallii* (Cassin) much more than from *semplei* in being very much darker; more black and white (less brownish) throughout; the toes much more heavily feathered. *Suttoni* differs from *O. a. cineraceus* of Arizona in being darker, more black and white (less brownish) throughout; the streaking above being considerably wider and somewhat wider below; white areas on chin and upper throat whiter (less buffy); vermiculations on breast and

<sup>2</sup> I take pleasure in naming this for Dr. George Miksch Sutton, because of his work in regions of northeastern Mexico adjoining that of the range of this new form and because of the courtesy shown to me in the loan of his valuable series of *Otus asio semplei* from northern Nuevo Leon.

<sup>3</sup> Names of colors in this paper, when capitalized, are taken from Ridgway's "Color Standards and Color Nomenclature," 1912.

upper abdomen less heavy and more blackish; the large light spots on the underside of the secondaries and proximal primaries much darker, in most specimens distinctly pinkish; size larger.

*Range*.—The south-central portion of the Central Plateau, ranging west from Hidalgo through Queretaro to Aguascalientes, thence north to Durango and probably to southern New Mexico.

*Average Measurements*.—

	<i>Wing</i>	<i>Tail</i>	<i>Culmen from Cere</i>
<i>Males</i> .			
2 ads. <i>semplei</i> .....	153.6 (152.0-155.2)	81.4 (80.1-82.7)	13.9 (13.6-14.1)
6 ads. <i>suttoni</i> .....	161.9 (156.9-166.4)	80.4 (74.4-84.8)	13.9 (13.5-14.0)
10 ads. <i>mccallii</i> .....	152.1 (145.4-160.1)	77.3 (72.3-82.6)	13.7 (13.2-14.5)
<i>Females</i> .			
5 ads. <i>semplei</i> .....	159.1 (155.5-162.7)	80.8 (78.1-82.0)	14.3 (13.6-15.0)
2 ads. <i>suttoni</i> .....	164.9 (152.1-167.7)	78.8 (75.0-82.6)	12.8 (12.5-13.1)
8 ads. <i>mccallii</i> .....	154.6 (150.9-160.6)	79.6 (74.3-82.3)	

*Specimens examined*.—*Suttoni*—Hidalgo: Portezuelo 1 ♀ (Type, Dec. 19); Queretaro: El Caracol 1 ♂ (Dec. 9); Aguascalientes: San Jacinto 2 ♀ (Oct. 14-22); Durango: Santuario 1 ♂ (Feb. 22), Rio Sestin 2 ♀ (Apr. 4-May 3), Ojito 1 im. ♀ (Aug. 26). *Semplei*—Nuevo Leon: Topotypical specimens, including type, from Mesa de Chipinque near Monterrey 2 ♂ 2 ♀ (Feb. 12-May 5), near Monterrey 2 ♀, Montemorelos 1 ♀ (Apr. 3). *Mccallii*—Texas, Tamaulipas and Nuevo Leon: large series listed by Moore and Peters (loc. cit. p. 41).

*Remarks*.—*Suttoni* finds its best expression in the southern portion of the Central Plateau from Hidalgo through Queretaro to Aguascalientes and north to Durango. The birds of southern New Mexico are nearly intermediate between *cineraceus* and *suttoni*, having the heavier markings and streakings below and above, as well as larger size, of *suttoni*. So far no rufous phase specimen has been found of the new race, as compared with the presence of such specimens both in *mccallii* and *semplei*, but not in *cineraceus*. In one other respect *cineraceus* and the birds of the Central Plateau (*suttoni* and the undescribed race from Jalisco) are more alike in having the toes well feathered, as contrasted with the slightly bristled toes of both *semplei* and *mccallii*, the latter two being the only ones, except *xantusi*, of the *Otus asio* group which possess these intermediate kind of bristles.

***Otus asio sortilegus*,<sup>4</sup> subsp. nov.**

JALISCO SCREECH OWL.

*Type*.—Female adult breeding, number 17038, collection of Robert T, Moore; 3 miles west of Atoyac, Jalisco, Mexico, about 4200 feet, February 25, 1940; collected by Chester C. Lamb.

*Subspecific characters*.—Differing more markedly from *O. a. suttoni*, whose range lies geographically between it and *O. a. cineraceus*, it is nearest to the latter, but it differs in having upper parts darker; throat and sides of neck grayer; the fine dots and marks of the vermiculation of the under parts

<sup>4</sup> From the Latin *sortilegus* = foretelling, referring to the revealing of the status of the relationship of the *Otus vinaceus* group, with *cooperi*.

much more numerous; the legs more cinnamon; under wing coverts and axillars more buffy; feathering on toes slightly more scanty, but not consisting of bristles. It differs from *suttoni* in having the upper and under parts browner (less black and white); the streaking above and below more narrow; the vermiculation of the breast and abdomen heavier and browner; the axillars and under wing coverts more buffy; the light spots on the under side of secondaries and proximal primaries more buffy, less pinkish; the legs darker and more buffy; the toes more scantily feathered, but not bristled; size smaller.

*Range.*—Known only from a pair of birds, male and female, from near Atoyac, Jalisco, at 4200 feet altitude, the male, according to Mr. Lamb, having been caught by hand in the nesting hole in a mesquite.

*Measurements.*—

	Wing	Tail	Culmen from Cere
1 ad. ♂ <i>sortilegus</i> .....	150.7	76.3	13.9
3 ad. ♂s <i>cineraceus</i> .....	148.8 (146.9–152.3)	76.2 (73.7–78.0)	12.9 (12.4–13.2)
1 ad. ♀ <i>sortilegus</i> .....	154.9	80.5	14.2
8 ad. ♀s <i>cineraceus</i> .....	156.8 (143.8–164.4)	79.5 (76.5–84.8)	13.4 (12.2–14.3)

*Specimens examined.*—*Sortilegus*:—Jalisco: near Atoyac 1 ♂ 1 ♀ (Type, Feb. 25–26 breeding). *Cineraceus*—The specimens listed in the American Museum of Natural History and Biological Survey (Auk, vol. 56, January, 1939, p. 40); also specimens in the Donald R. Dickey Collection—Arizona: Bonita Canyon, Chiricahua Mts. 1 ♂ 1 ♀ (Feb. 20–May 5), Fort Lowell 2 ♂ 2 ♀ (Dec. 27–Apr. 17). Intergrades with *suttoni*—New Mexico: Reserve 1 ♂ (Apr. 29).

*Remarks.*—*Sortilegus* is a bird of the mesquite association and heavily forested flat valleys, consisting of large trees, in addition to the mesquites, such as “Higuera, Guamuchils, Capulins,” as well as extensive growth of “Pitaya Cacti.” Mr. Lamb writes that the area is a huge valley, fifty miles long and from five to ten miles wide “absolutely flat,” which once contained an extensive series of lakes—dry for the past six years. Although *sortilegus* is nearer to *cineraceus* of Arizona, it is separated from it by the eastern portion of the range of *suttoni* (Aguascalientes to Durango). Birds of the last taken at San Jacinto, Aguascalientes, only 180 miles north of the type locality of *sortilegus* are the most extreme black and white examples of *suttoni*, differing much more from the Jalisco birds than do the birds of Arizona.

**Otus vinaceus seductus**, subsp.<sup>5</sup> nov.

MICHOACAN SCREECH OWL.

*Type.*—Male adult, number 25468, collection of Robert T. Moore; 5 miles northeast of Apatzingan, Michoacan, altitude 1000 feet; February 5, 1940; collected by Chester C. Lamb.

*Subspecific characters.*—Larger than both previously described races of *Otus vinaceus vinaceus* (Brewster) and fully as large as *Otus cooperi* (Ridg-

<sup>5</sup> *Seductus* = remote, referring to the great extension of the habitat of the species into southern Mexico.

way), both in general measurements and feet, nearest to the former, but differing in having the upper parts very much darker, but general tone of underparts almost exactly the same, except that the chin is much whiter (pure white); the upper throat less buffy; the light spots on the wing coverts and scapulars pure white instead of pure buff; the dark quadrate spots on the outer webs of the ninth, eighth and seventh primaries, counting from outside, not so heavily vermiculated; the auriculars very much darker, browner instead of gray; the lores pure white instead of barred with gray; the toes bristled; size much larger, at least twenty per cent. As compared with *sinaloensis*, the differences are about the same as with *vinaceus*, except that, although the upper parts are very much darker (browner), the under parts are actually lighter, particularly on the center of the abdomen, center of breast throat and chin; the contrast is greater, but the light spots on the wing coverts and scapulars are only a trifle whiter. Compared with *Otus cooperi*, *seductus* is just as large and has just as large feet, but differs in being darker, browner above; much browner on the auriculars; much whiter on the lores and chin and has the typical *asio* dark spotted nuchal collar, extending from the auriculars around the throat, which is either lacking, or merely vestigial in *cooperi*; the tail considerably longer than half the length of wing, instead of considerably shorter; a dark brownish eye-ring, instead of gray.

*Range*.—Known only from the two specimens in the Moore Collection, taken in different parts of Michoacan.

*Average Measurements.*—

	<i>Wing</i>	<i>Tail</i>	<i>Culmen From Cere</i>	<i>Middle Toe<sup>6</sup> Minus Claw</i>
<i>Seductus</i> .				
2 ad. ♂s ....	175.3 (169.2–181.3)	92.5 (89.3–95.7)	14.9 (13.7–16.0)	17.9 (17.4–18.3)
<i>Cooperi</i> .				
6 ad. ♂s	166.3 (162.1–174.1)	80.2 (73.8–87.2)	15.1 (13.9–16.0)	16.0 <sup>7</sup>
8 ad. ♀s	171.3 (163.0–177.9)	81.4 (76.5–84.2)	15.8 (15.4–16.0)	17.8 (17.5–18.1)
<i>Vinaceus</i> . <sup>8</sup>				
3 ad. ♀s	149.1 (145.5–154.5)	76.4 (74.8–78.2)	13.9 (13.8–14.0)	15.2 (14.5–15.6)
<i>Sinaloensis</i> .				
3 ad. ♂s	140.2 (136.0–142.4)	73.6 (71.6–75.2)	12.6 (12.4–12.8)	14.4 (13.2–15.3)
<i>Sinaloensis</i> .				
1 ad. ♀	148.0	74.7	14.0	15.2

*Specimens examined*.—*Seductus*—Michoacan: near Apatzingan 1 ♂ (Type Feb. 5), Chinapa 1 ♂ (Jan. 1). *Otus cooperi*—Costa Rica: Esparta 1 ♂ 2 ♀ 1 Im. ♀ (Mch. 26–27). Also the specimens in the American Museum of Natural History and the United States National Museum (Auk, vol. 56, Jan. 1939, p. 48).

<sup>6</sup> As it would be necessary to destroy the feathers to measure this distance in the usual way, I place the point of the micrometer at the point where the distal margin of the integument between the middle and outer toe reaches its most proximal point and then measure from there to the distal end of the middle toes, where integument ends on the base of the claw.

<sup>7</sup> Lacking this measurement for all six specimens, I took it of the largest individual, a specimen in the Moore Collection from Esparta, Costa Rica.

<sup>8</sup> No males have yet been taken of this race; of *sinaloensis* one male and one female are intergrades and not included in measurements.

*Remarks.*—Both of our male specimens of *seductus* seem to be in the gray phase, because both specimens are the same depth of tone on the under parts as the under parts of my four specimens of the light phase of *cooperi* and of my two females of *vinaceus*, of which only the gray phase is known. Nevertheless, on the upper parts both males of *seductus* are much darker than the upper parts of either *vinaceus* or *cooperi*, having in an extraordinarily dark coloration between Warm Sepia and Verona Brown of Ridgway. No specimen in any other phase has been taken. No rufous phase specimen has been secured either of *cooperi* or of the *vinaceus* group, nor is it certain that any of the three races of the *vinaceus* group has more than one gray phase; however, I have seen only three of the four specimens of *sinaloensis* in the Dickey Collection. One of these, a male taken at Agiabambo, southwestern Sonora, on May 19, 1937, which has not yet been given a catalogue number, has the printed name of "Robert G. Hannum" on its tag. This individual lies about half way between the darker coloration of all the rest of the specimens of *sinaloensis* and my two intergrades from the higher altitude of the Guirocoba Ranch in southeastern Sonora (Proc. Biol. Soc. of Wash., Vol. 50, April 21, 1937, pp. 64-65). The Agiabampo individual is certainly not sufficiently different from all the others to make one conclude two phases are involved.

Incidentally, these recently taken specimens in the Dickey Collection amply prove the validity of *sinaloensis* and bring the total specimens in collections to five from the coastal plains, in addition to the two intergrades from the cypress-palo blanco association of the Guirocoba area. They prove that *sinaloensis* is very much darker gray and very much more vermiculated below than *vinaceus*; considerably darker above; with the light colored marks on the scapulars and wing coverts much whiter.

The fact that the two individuals of *seductus* are both males would seem to indicate that the taking of females will prove it to be an extraordinarily large Screech Owl. The type of *seductus* has a larger wing (181.3 mm.) than any one of the fifteen specimens of *cooperi*, which I have measured, the largest one being a female (177.9 mm.). In the table of measurements above, I was not able to give a good comparison of size of the feet of *seductus* and *cooperi* from measurements of the middle toe without claw taken in the usual manner. However, I do have a fair comparison for the measurement of the middle toe from the base of the second joint to the point where the integument ends on the base of the claw. This measurement of the two male *seductus* average 19.9 mm., whereas the same measurement of six adult males of *cooperi* average 18.9 mm. It would appear from all measurements that *seductus* is not only just as large as *cooperi*, but probably larger.

It is believed by some that the feet of *cooperi* are very much larger in proportion to the size of the bird than the feet of other species of Screech Owls. Taking the percentage of the ratio of the middle toe minus claw, measured from the angle between the middle toe and outer toe, to the wing, I find that in *cooperi* it is 10.1 per cent, *seductus* 10.2, *vinaceus* 10.2, *sinaloensis* 10.2, *xantusi* 9.2, *cineraceus* 9.5, *semplei* 9.6, *suttoni* 8.6, *sortilegus* 9.0, *mccallii* 9.6, *guatemalae vermiculatus* 11.2 and *guatemalae tomlini* 10.0. These measurements cover a series of females of each race except for *seduc-*



*tus*. From the above it appears that the five races of *Otus asio* of Mexico and the southern boundary States of the United States (*mccallii*, *cineraceus*, *xantusi*, *suttoni*, and *sortilegus*) have the middle toe from one half to one per cent proportionately smaller than *cooperi*, whereas all of the three races of *o. vinaceus* (*vinaceus*, *sinaloensis*, *seductus*) have the middle toe proportionately just as large as *cooperi*, in fact very slightly larger, while proportionately longest toes were found in a race of a different species, *Otus guatemalae vermiculatus*, namely 11.2 per cent.

Two deductions can be made from the above measurements, (1) *cooperi* does not have extraordinarily large feet in proportion to its size, (2) the *vinaceus* group is closer to *cooperi* in this character than is the *asio* group.

The relation of *Otus asio xantusi* to the *vinaceus* group is an interesting one. Like other southern races of *asio*, such as *mccallii* and *semplei*, it has the toes more sparsely feathered, but not bristled, since the calamus is very small as in the *asio* group and each one has several hair-like appendages, resembling filoplumes. These are very different from the enlarged calami of the bristles of *cooperi* or *seductus*, which seldom have hair-like appendages. *Xantusi* also resembles the *vinaceus* group in the buffy spotting on the nape and upper back and the vermiculation, in most specimens, on the quadrate darker marks on the outer webs of the ninth, eighth and seventh primaries. However, it is a true *asio* in its color pattern, having the large dark blotches on sides of breast, the conspicuous streaks on the upper parts, the less heavily vermiculated abdomen, pale under wing coverts and the very large white spots on the wing coverts and scapulars. Now that we have a good series of *sinaloensis*, it is proved to be more markedly different from *xantusi* than seemed true when *sinaloensis* was described.

This paper makes no attempt to reach a final conclusion concerning the relationships of these difficult races, but does urge the desirability of temporarily holding together the *vinaceus* assemblage as one conspecific group until the accumulation of more material may prove this course unwise. In any event, the intrusion of an extreme type of *asio*, *sortilegus*, near to the habitat of the utterly different and huge *vinaceus*-group race, *seductus*, must be satisfactorily explained. If this can be done and the character differences between the two groups proved unimportant, so as to show that the *vinaceus* group is conspecific with the *asio* group, then it might be desirable to go even farther and include *seductus* and *cooperi* with them as one conspecific concept.